ACOUSTICAL ANALYSIS ASSOCIATES, INCORPORATED

AAAI REPORT 1235
AAAI PROJECT 88018

QUARTERLY NOISE MONITORING AT BURBANK AIRPORT FOURTH QUARTER 1999

Jane M. Beckmann
Dwight E. Bishop

February 2000

Prepared for:

BURBANK GLENDALE PASADENA AIRPORT

22148 Sherman Way • Suite 206 • Canoga Park, CA 91303 • (818) 713-1160

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Prepared for:

Burbank-Glendale-Pasadena Airport Authority
2627 Hollywood Way
Burbank, CA 91505

Prepared by:

Acoustical Analysis Associates, Inc.
22148 Sherman Way, Suite 206
Canoga Park, CA 91303

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QUARTERLY NOISE MONITORING AT BURBANK AIRPORT
FOURTH QUARTER 1999

I. INTRODUCTION

In compliance with the California Noise Standards (Reference 1) and the current variance from certain provisions of the Standards (Reference 2), the operator of the Burbank Airport is required to perform noise monitoring in the vicinity of the airport for the purpose of establishing a noise impact boundary. The Noise Standards currently specify a community noise equivalent level (CNEL) of 65 dB for the noise impact boundary[1]. The airport is required to provide, each quarter, an updated annual noise impact contour based on measurement data over the four preceding quarters.

A permanent noise monitoring system became operational in April 1980 and, with brief interruption for system expansion, maintenance, and program changes, has been operational since that time. The original noise monitor sites have remained unchanged (with the exception of Site 8 that was moved about 15 feet because of construction). Two sites were added east of the airport in late 1980. Four sites were added south of the airport in January 1986 in response to the requirement to determine the 65 dB contour. Three more locations were added in February 1997. Two of these, identified as 16 and 17, are south of the airport, and one, 18, is to the west. The site to the west replaces Site 8. These locations were added to permit monitoring closer to the 65 dB contour. The noise monitoring computer at the airport was replaced in August 1995.

This report describes the data acquired by the monitoring system during the fourth quarter of 1999. Noise impact boundaries for 65 dB and 70 dB are shown based on these measurements and measurements obtained during the first, second and third quarter of 1999 reported in References 3, 4 and 5. Figure 1 shows the 70 dB contour and Figure 2 shows the 65 dB contour, based on the measured noise data.

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[1] Prior to January 1, 1986, a CNEL of 70 dB defined the noise impact boundary.

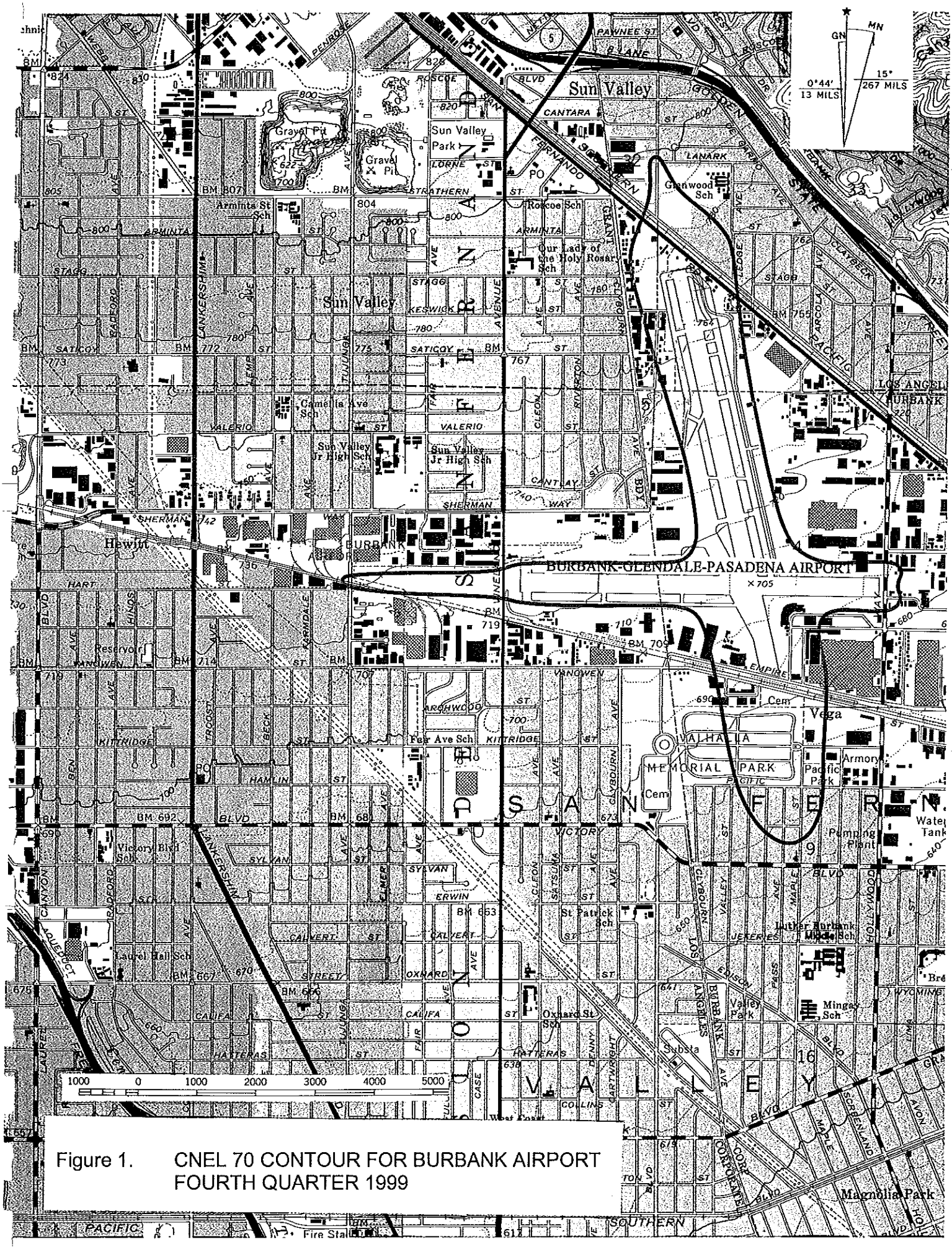

Figure 1. CNEL 70 CONTOUR FOR BURBANK AIRPORT
FOURTH QUARTER 1999

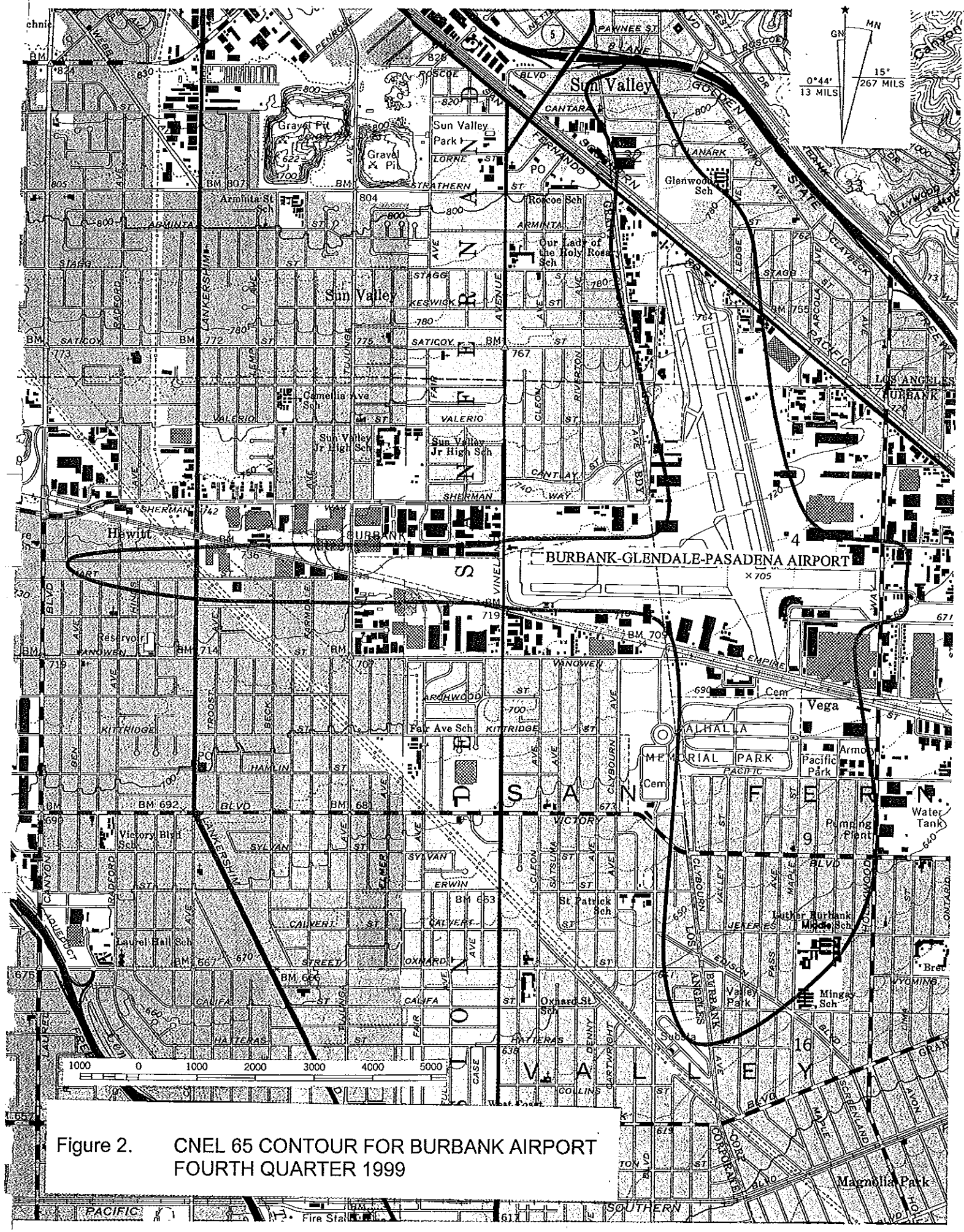

Figure 2. CNEL 65 CONTOUR FOR BURBANK AIRPORT
FOURTH QUARTER 1999

II. NOISE MEASUREMENTS

A. Sites

Aircraft noise levels were monitored at 15 locations prior to February, 1997. Two sites were added in February 1997, and equipment at one site west of the airport was moved to a new location. The noise monitor sites are shown in Figure 3. No data were recorded at Site 8 after Site 18 became active. The site is still shown on this figure.

B. Noise Measurement Equipment

Each of the microphone locations uses an identical set of equipment connected to a central control unit. The noise level at each site is digitized and transmitted by phone line to the central site. The computer at the central site processes the data to produce (among other measures) the CNEL at each site. Appendix A provides a brief description of the system.

C. Noise Data

Electrical power and phone line interruptions occurred several times during the quarter resulting in loss of data. Tables 1, 2, and 3 show each site monitoring RMS "OFF" if the site was operating for less than 94% of the time. The data for these days were excluded from the averages.

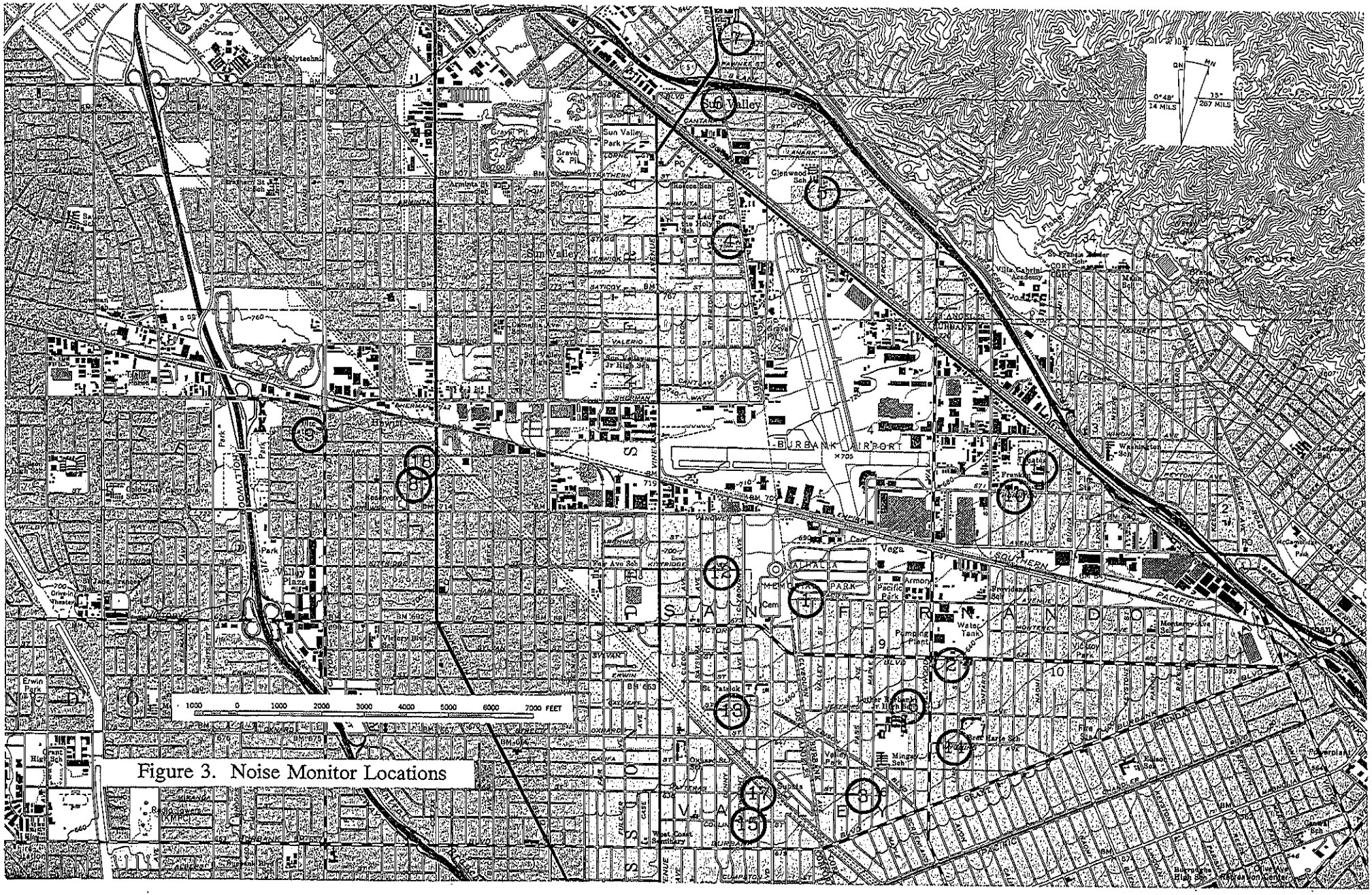

Figure 3. Noise Monitor Locations

D. Operational Data

Detailed departure and arrival logs are provided by the airlines. Operations of other jet aircraft are determined from air traffic strips provided by the FAA at Burbank Tower. In addition, flight schedules and logs of nighttime operations are provided by airport personnel.

III. MEASURED NOISE DATA

Daily CNEL values for the noise monitoring system are listed in Tables 1, 2, and 3. Table 4 lists the average values for each quarter together with the annual average.

IV. SCHEDULED AIRLINE AND COMMUTER OPERATIONS

The scheduled air carrier and commuter operations for the quarter are shown in Table 5.

V. CNEL CONTOUR DEVELOPMENT

The contours shown in Figures 1 and 2 are based upon computer-generated "master" contours which are adjusted to reflect the monitoring data. This fourth quarter 1999 used the master contours produced by Version 5.2A of the Integrated Noise Model (INM), a sophisticated aircraft noise modeling program developed for the Federal Aviation Administration. Inputs to the program consist of aircraft types and performance data, flight paths, numbers of operations, and day/evening/night distribution of flights. The program calculates CNEL values at equally spaced grid points and produces CNEL contour lines at 1 dB intervals. The annual average CNEL values at each site were marked at the appropriate locations on the contour map and the locations of the 65 and 70 dB CNEL contours were determined in the vicinity of each measuring point. These points were then joined following the general shape of the computed contours.

The master contours, used in developing the contours for this quarter are based on operations for the 12-month period from January 1998 through December 1998. This replaced the previous master set of CNEL Contours which were based on operations for the 12-month period from January 1995 through December 1995.

TABLE 1. CNEL VALUES FOR OCTOBER 1999

	RMS NUMBER																	
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
10/01/99	68.4	62.9	63.4	64.7	63.5	63.8	62.0	0.0	64.8	60.3	55.4	63.3	61.2	60.2	63.2	65.4	63.4	66.4
10/02/99	66.4	61.7	63.4	62.8	63.6	61.3	58.7	0.0	61.9	55.3	50.1	54.9	60.7	59.0	61.9	64.8	62.1	64.0
10/03/99	66.9	62.3	63.2	61.0	60.3	57.6	61.2	0.0	63.3	53.4	50.4	55.2	60.4	59.5	63.2	64.4	62.9	65.5
10/04/99	68.4	63.4	63.9	64.3	65.2	62.1	61.1	0.0	62.6	59.7	55.0	56.3	62.3	60.4	64.3	65.8	64.2	65.4
10/05/98	68.9	62.3	62.8	64.5	63.7	66.7	63.3	0.0	64.3	60.1	55.3	57.9	63.5	59.9	63.7	65.1	64.2	66.4
10/06/99	69.1	63.7	63.4	65.3	66.3	68.9	63.2	0.0	63.9	62.3	56.2	58.1	62.0	61.9	63.7	66.3	63.7	65.8
10/07/99	66.9	62.4	64.1	68.3	68.6	69.2	65.5	0.0	62.5	61.3	56.4	56.6	58.6	60.9	63.3	67.0	62.8	64.5
10/08/99	67.3	62.5	64.0	64.7	66.9	64.7	61.5	0.0	63.9	59.8	55.5	55.1	60.7	59.7	63.6	65.8	63.7	65.9
10/09/99	64.3	59.4	59.5	60.4	60.7	58.1	58.5	0.0	60.8	59.5	50.8	52.0	57.5	56.1	60.8	61.2	60.4	62.5
10/10/99	66.2	62.1	62.8	59.4	63.3	61.3	62.5	0.0	61.4	49.5	40.7	51.8	60.0	59.0	63.0	64.4	62.9	63.2
10/11/99	67.0	63.0	62.6	59.2	62.0	60.4	61.0	0.0	62.9	61.8	56.6	56.0	61.0	60.1	63.5	65.1	63.0	65.0
10/12/99	66.6	62.6	63.5	62.2	64.7	63.5	60.3	0.0	63.8	58.3	55.5	55.3	60.4	62.2	63.6	66.0	63.4	65.6
10/13/99	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0.0	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/14/99	69.4	63.4	64.3	65.7	64.5	64.7	65.0	0.0	63.6	57.1	56.1	59.6	63.5	59.9	64.2	66.3	64.2	64.9
10/15/99	68.7	69.5	66.0	63.1	66.7	61.2	60.7	0.0	65.9	59.2	57.9	56.4	62.4	62.3	65.0	67.9	65.0	66.9
10/16/99	66.3	59.4	59.8	60.9	59.4	57.1	55.1	0.0	61.8	53.9	50.9	51.6	61.2	55.6	61.2	61.4	62.4	61.5
10/17/99	66.4	62.4	63.2	60.5	60.3	58.6	59.8	0.0	61.2	59.6	58.4	52.9	59.1	58.8	62.2	65.2	62.0	62.9
10/18/99	66.9	69.4	62.1	64.1	67.8	60.9	60.0	0.0	60.6	56.6	56.3	54.1	61.6	58.3	63.1	64.4	63.6	62.8
10/19/99	66.6	61.6	62.6	63.3	64.3	62.3	61.0	0.0	61.5	59.6	56.3	57.2	58.9	59.3	61.3	64.7	61.5	63.9
10/20/99	66.6	61.0	61.7	61.6	63.7	62.0	62.5	0.0	62.0	61.6	58.9	55.0	58.8	57.4	61.0	63.5	60.8	64.2
10/21/99	67.5	63.6	65.9	60.7	64.9	63.2	61.7	0.0	62.3	60.5	60.0	57.0	59.4	61.4	62.6	67.7	62.4	64.4
10/22/99	67.5	63.5	64.5	67.9	65.4	60.9	61.6	0.0	63.5	59.4	59.2	58.8	60.5	60.9	63.8	66.3	63.5	65.5
10/23/99	64.3	60.2	61.9	58.6	62.5	56.1	57.5	0.0	60.5	54.8	52.8	51.2	58.2	57.3	61.0	62.5	62.5	62.2
10/24/99	66.3	62.9	64.0	60.6	64.0	56.9	62.1	0.0	62.4	51.3	47.6	52.3	59.3	60.3	62.5	65.6	62.3	64.9
10/25/99	66.6	62.9	64.3	57.6	62.3	59.5	62.4	0.0	61.9	60.4	55.2	56.8	59.5	59.7	63.1	65.5	62.6	64.0
10/26/99	68.7	62.3	63.2	66.3	66.3	64.8	66.0	0.0	62.9	56.5	57.2	59.0	62.3	59.4	63.3	64.7	63.4	64.7
10/27/99	67.6	62.1	62.2	61.9	63.0	62.5	59.0	0.0	65.3	57.1	54.4	56.4	62.0	58.8	64.0	63.8	63.7	67.2
10/28/99	67.8	63.7	64.9	62.6	62.2	62.3	61.9	0.0	64.5	56.3	52.7	56.5	61.4	60.9	64.7	66.2	64.6	66.4
10/29/99	69.5	65.0	66.0	68.1	70.3	66.2	63.1	0.0	64.9	60.5	57.4	57.2	63.6	62.5	64.2	68.1	64.0	66.6
10/30/99	63.6	58.2	58.6	60.9	60.7	60.9	61.0	0.0	57.9	56.2	57.9	52.5	57.9	54.9	59.1	60.1	59.7	60.3
10/31/99	64.2	59.6	60.0	61.1	62.1	60.9	59.5	0.0	60.4	54.2	51.5	53.1	57.2	56.0	59.3	62.1	59.0	62.9
AVERAGE	67.3	63.4	63.4	63.7	64.8	63.2	61.9	0.0	63.0	58.8	55.9	56.6	60.9	59.8	63.0	65.3	63.0	64.8
NO./DAYS	30	30	30	30	30	30	30	0	30	30	30	30	30	30	30	30	30	30

TABLE 2. CNEL VALUES FOR NOVEMBER 1999

	RMS NUMBER																	
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
11/01/99	65.9	60.2	60.3	66.3	61.7	60.9	59.7	OFF	61.7	55.2	51.6	53.4	61.8	56.4	59.8	62.7	60.0	63.6
11/02/99	67.0	61.7	62.1	63.0	61.8	63.4	63.6	OFF	63.7	59.3	57.9	56.7	61.4	59.6	62.7	63.3	62.5	65.5
11/03/99	66.9	61.6	61.2	63.3	62.5	64.2	63.0	OFF	63.2	60.5	59.8	56.5	62.8	59.5	62.8	62.6	62.9	65.5
11/04/99	68.3	63.0	62.5	63.3	62.4	61.9	59.0	OFF	66.1	59.0	59.7	55.0	61.1	59.4	63.6	64.8	63.6	67.9
11/05/99	68.3	64.5	65.5	64.1	64.1	64.4	60.1	OFF	65.7	55.0	50.7	56.8	62.9	61.5	65.6	66.9	65.0	67.2
11/06/99	64.8	59.8	60.7	58.5	58.8	56.1	55.7	OFF	62.1	61.8	55.2	56.1	59.5	56.4	61.6	61.7	61.4	65.1
11/07/99	64.9	61.1	60.5	58.3	58.9	54.0	58.4	OFF	63.8	50.9	42.6	52.0	59.6	58.0	61.5	62.1	61.3	65.2
11/08/99	67.3	63.9	63.6	60.5	59.8	60.4	61.1	OFF	63.9	52.8	53.6	56.7	61.4	60.7	63.7	65.3	63.4	68.1
11/09/99	68.6	64.1	64.8	62.4	64.1	64.8	64.3	OFF	63.2	60.5	60.1	60.4	62.8	61.3	64.8	66.7	65.2	65.6
11/10/99	67.1	64.8	63.0	64.0	66.6	64.6	62.8	OFF	64.5	59.7	58.7	55.5	61.8	60.8	64.4	65.0	64.4	65.9
11/11/99	66.9	62.6	63.1	62.7	64.5	65.3	64.6	OFF	61.7	57.6	57.9	56.7	60.6	60.3	63.2	65.0	62.8	63.8
11/12/99	66.9	63.1	62.9	64.4	64.9	63.8	67.9	OFF	63.8	60.9	59.4	59.1	60.3	58.9	62.3	64.1	61.9	65.8
11/13/99	63.7	58.3	58.5	58.6	59.7	62.3	60.5	OFF	61.6	57.6	52.4	54.2	56.6	55.4	59.2	60.0	58.9	63.8
11/14/99	66.9	62.8	65.0	67.5	63.4	54.9	67.3	OFF	64.4	58.0	43.8	56.3	62.3	59.7	66.6	64.9	67.3	66.0
11/15/99	67.7	63.5	65.9	57.6	59.0	59.9	63.6	OFF	63.6	61.9	57.5	59.0	61.3	61.3	64.0	67.4	63.7	65.8
11/16/99	68.5	64.7	64.0	63.2	65.5	63.8	59.7	OFF	65.4	62.8	60.8	56.7	63.6	62.6	64.6	66.3	64.6	67.4
11/17/99	67.7	63.6	64.4	63.0	64.9	65.6	65.2	OFF	64.7	58.8	57.7	56.3	62.0	61.0	64.2	66.2	65.0	66.2
11/18/99	68.7	63.8	64.7	64.2	66.3	66.7	65.4	OFF	63.8	58.3	57.9	59.0	62.2	60.5	64.5	66.6	64.2	65.6
11/19/99	68.2	64.4	65.0	61.4	62.5	65.5	62.1	OFF	66.1	61.0	61.1	58.6	60.7	61.5	64.2	66.5	63.8	67.9
11/20/99	65.0	60.9	62.3	60.9	63.3	64.2	59.5	OFF	62.4	54.2	50.8	54.7	59.2	58.4	61.3	63.8	61.2	64.0
11/21/99	62.9	57.7	60.9	62.5	63.6	65.7	62.0	OFF	58.4	50.7	46.5	53.1	53.2	58.4	56.0	67.8	55.5	62.5
11/22/99	65.3	58.7	58.8	63.9	62.8	65.1	62.6	OFF	60.5	56.7	54.7	53.1	60.2	55.1	61.1	60.7	60.9	62.9
11/23/99	66.3	61.7	63.4	65.1	64.2	61.8	60.6	OFF	62.2	58.5	57.6	56.9	58.8	59.3	61.7	64.8	61.0	63.9
11/24/99	66.2	61.4	61.8	66.7	69.5	63.2	62.9	OFF	62.3	58.7	57.3	57.0	58.6	59.3	61.3	63.9	60.8	64.5
11/25/99	61.9	58.2	58.7	60.7	58.5	55.3	58.1	OFF	57.9	52.2	54.1	48.5	57.2	55.0	58.7	60.5	58.4	60.5
11/26/99	66.5	61.0	61.4	65.5	63.7	57.9	58.9	OFF	61.5	56.3	55.1	54.4	59.8	57.1	61.5	62.6	61.3	63.0
11/27/99	65.3	59.7	59.8	62.2	63.0	60.8	62.0	OFF	62.4	53.8	50.8	59.8	59.2	56.0	61.1	61.1	60.6	63.5
11/28/99	66.0	63.3	63.8	63.0	65.0	58.0	59.3	OFF	63.7	49.4	48.9	53.9	60.1	60.6	63.7	65.4	63.3	65.4
11/29/99	66.2	62.2	62.6	65.0	65.3	61.8	62.4	OFF	62.6	56.3	56.2	55.3	60.6	58.7	63.4	64.6	63.1	64.5
11/30/99	67.4	62.4	62.8	63.8	65.5	65.5	64.1	OFF	63.9	59.5	59.9	60.8	61.3	61.5	62.7	64.5	62.4	66.0
AVERAGE	66.7	62.4	62.9	63.5	63.9	63.2	62.8	0.0	63.4	58.4	56.9	56.8	60.8	59.6	63.0	64.7	62.9	65.4
NO./DAYS	30	30	30	30	30	30	30	0	30	30	30	30	30	30	30	30	30	30

TABLE 3. CNEL VALUES FOR DECEMBER 1999

	RMS NUMBER																	
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
12/01/99	61.6	58.8	59.0	58.6	57.9	61.6	59.1	OFF	57.9	48.6	45.7	50.5	55.1	56.0	57.7	62.3	57.2	61.5
12/02/99	65.6	59.5	60.5	65.3	65.9	68.4	64.0	OFF	62.7	60.2	59.1	59.3	57.7	58.3	59.6	64.7	59.1	64.3
12/03/99	66.5	61.8	61.9	66.2	65.0	65.1	61.4	OFF	64.6	58.8	55.7	55.1	60.1	58.5	62.3	63.4	62.3	64.9
12/04/99	61.8	56.7	56.6	62.2	62.9	59.7	59.0	OFF	60.4	55.0	51.4	48.3	56.4	52.2	57.7	58.2	57.7	62.6
12/05/99	64.2	59.3	59.5	59.6	61.9	59.2	61.5	OFF	60.6	46.2	43.6	50.9	59.2	55.7	61.2	61.2	60.8	62.9
12/06/99	65.4	61.2	61.0	60.8	61.5	58.5	60.1	OFF	61.6	57.0	56.1	53.5	59.8	57.5	61.6	62.9	61.4	64.8
12/07/99	66.2	60.0	61.7	66.8	67.1	69.0	64.5	OFF	59.4	58.0	57.7	58.3	58.0	60.9	59.3	67.4	59.7	62.5
12/08/99	66.0	58.5	58.5	64.7	64.6	66.7	65.2	OFF	62.1	56.8	53.7	57.0	60.0	57.5	60.0	61.3	59.9	65.1
12/09/99	69.2	62.1	62.7	62.9	64.2	64.0	65.7	OFF	62.1	59.7	60.8	57.9	63.7	58.8	63.3	64.5	63.4	64.1
12/10/99	67.0	57.2	59.8	66.0	67.7	69.9	65.1	OFF	61.5	59.0	56.2	61.1	56.9	56.5	55.8	65.9	54.3	64.8
12/11/99	62.2	58.5	58.2	61.8	65.5	61.2	59.4	OFF	59.4	56.1	51.3	48.7	55.7	55.6	57.3	61.3	57.1	61.5
12/12/99	71.1	61.3	61.0	64.2	68.7	58.6	60.9	OFF	62.1	59.8	55.1	65.3	62.1	57.1	61.9	62.2	61.7	64.0
12/13/99	67.6	61.7	61.2	64.5	64.3	62.7	60.6	OFF	64.4	60.5	56.0	56.5	63.0	58.4	62.7	63.6	62.3	66.3
12/14/99	66.2	62.1	61.5	65.1	65.9	64.5	63.2	OFF	62.3	60.9	58.8	58.1	60.7	58.7	61.7	64.2	61.3	64.2
12/15/99	64.9	60.7	61.0	65.9	64.2	62.1	61.8	OFF	61.2	60.1	58.2	49.7	59.1	57.0	61.3	63.3	60.7	63.0
12/16/99	68.9	62.5	62.8	66.2	67.0	65.0	63.9	OFF	62.6	61.5	60.4	60.6	60.7	59.6	62.5	65.4	61.7	64.4
12/17/99	67.6	62.6	62.8	65.3	67.0	62.8	62.8	OFF	61.9	59.7	57.9	58.6	61.5	60.0	64.1	64.6	63.5	64.4
12/18/99	63.8	59.7	60.6	61.0	61.1	58.3	58.0	OFF	61.7	50.8	48.9	53.0	57.1	56.6	59.9	62.9	59.2	63.5
12/19/99	64.7	60.5	61.2	67.3	68.5	59.3	59.4	OFF	62.3	49.8	50.4	52.7	58.7	57.1	61.3	63.0	60.9	64.1
12/20/99	66.8	61.5	63.3	63.4	66.1	63.1	61.3	OFF	62.1	59.8	59.9	53.2	60.6	58.9	62.8	64.9	62.8	64.0
12/21/99	65.8	61.6	62.9	64.5	64.3	66.7	63.4	OFF	63.4	61.3	62.7	58.3	59.1	59.4	63.9	64.6	62.6	65.9
12/22/99	71.8	58.6	57.6	66.1	65.1	68.6	63.9	OFF	62.5	62.0	56.2	56.7	57.0	57.1	58.1	62.2	58.7	65.4
12/23/99	67.6	63.0	64.0	65.2	64.0	64.1	62.2	OFF	63.1	62.0	62.8	56.3	61.4	60.2	63.8	65.6	63.5	65.3
12/24/99	66.9	59.5	59.9	62.3	62.0	63.3	59.7	OFF	61.8	61.0	59.2	58.7	57.8	56.7	59.8	61.6	59.6	63.8
12/25/99	61.5	57.6	58.1	61.8	64.0	56.3	57.3	OFF	57.6	52.7	52.9	53.3	55.5	54.0	59.2	59.6	58.9	62.1
12/26/99	69.4	60.9	61.2	59.5	61.1	63.2	61.7	OFF	61.3	57.6	51.2	56.5	60.5	57.1	61.9	62.4	61.8	63.7
12/27/99	66.6	62.4	63.5	64.3	59.1	61.0	61.5	OFF	63.3	58.4	56.5	58.0	60.8	59.3	62.8	64.9	62.9	65.2
12/28/99	68.0	62.0	62.7	65.9	67.0	65.4	62.8	OFF	62.5	60.7	59.0	59.9	62.1	60.2	64.2	64.4	63.3	64.9
12/29/99	66.1	59.8	59.8	61.3	64.0	56.7	60.0	OFF	62.6	52.6	48.6	55.7	61.5	56.2	61.3	61.5	61.1	64.9
12/30/99	67.5	62.1	62.7	63.5	62.6	63.0	61.4	OFF	64.6	59.7	59.0	62.0	61.5	59.1	63.3	64.5	62.9	65.9
12/31/99	65.1	59.4	58.6	60.8	60.8	62.7	56.8	OFF	62.4	59.2	55.5	53.0	60.5	55.2	60.5	59.8	60.4	64.5
AVERAGE	66.9	60.7	61.2	64.2	65.0	64.3	62.1	0.0	62.1	58.9	57.4	57.8	60.0	58.0	61.5	63.6	61.2	64.3
NO./DAYS	31	31	31	31	31	31	31	0	31	31	31	31	31	31	31	31	31	31
QTR. AVG.	67.0	62.3	62.6	63.8	64.6	63.6	62.3	0.0	62.9	58.7	56.8	57.1	60.6	59.2	62.6	64.6	62.4	64.9
NO./DAYS	91	91	91	91	91	91	91	0	91	91	91	91	91	91	91	91	91	91

TABLE 4. AVERAGE CNEL VALUES

Site No.	1st Quarter 1999	2nd Quarter 1999	3rd Quarter 1999	4th Quarter 1999	4-Quarter Average
1	68.5	68.4	68.5	67.0	68.1
2	62.7	62.9	63.2	62.3	62.8
3	63.0	63.2	63.8	62.6	63.2
4	65.5	64.5	64.2	63.8	64.5
5	65.9	65.0	64.5	64.8	65.1
6	65.6	67.0	63.4	63.6	65.2
7	62.1	62.7	62.4	62.3	62.4
8	0.0	0.0	0.0	0.0	----
9	64.2	64.7	64.3	62.9	64.1
10	61.4	60.8	60.9	58.7	60.6
11	57.2	56.3	56.0	56.8	56.6
12	58.7	56.9	56.4	57.1	57.4
13	63.2	62.9	62.7	60.6	62.5
14	60.3	60.2	60.5	59.2	60.1
15	64.2	64.3	64.5	62.6	64.0
16	65.3	65.3	65.9	64.6	65.3
17	64.0	64.1	64.4	62.4	63.8
18	66.0	66.8	66.0	64.9	66.0

TABLE 5. WEEKLY SCHEDULED AIR CARRIER AND COMMUTER FLIGHTS FOR THE FOURTH QUARTER 1999

SCHEDULE IN EFFECT FROM 10/01/99 - 10/18/99

	AA DEPA MD80	AA ARRI MD80	AS DEPA MD80	AS ARRI MD80	HP DEPA B7373	HP ARRI B7373	WN DEPA B7373	WN ARRI B7373
DAY	14	7	27	27	27	27	177	150
EVENING	0	7	0	7	6	7	32	47
NIGHT	0	0	7	0	7	6	0	12
TOTAL	14	14	34	34	40	40	209	209

SCHEDULE IN EFFECT FROM 10/01/99 - 10/18/99

	WN DEPA B7375	WN ARRI B7375	WN DEPA B7377	WN ARRI B7377	UA DEPA B7373	UA ARRI B7373	UA DEPA B7375	UA ARRI B7375
DAY	107	114	8	8	34	27	54	48
EVENING	18	11	6	6	13	20	0	6
NIGHT	0	0	0	0	0	0	6	6
TOTAL	125	125	14	14	47	47	60	60

SCHEDULE IN EFFECT FROM 10/01/99 - 10/18/99

	UA DEPA B757	UA ARRI B757	AL DEPA DC9-ABS	AL ARRI DC9-ABS	AS DEPA B7374	AS ARRI B7374	COMM DEPA BRASIL	COMM ARRI BRASIL
DAY	0	0	4	4	1	1	0	0
EVENING	0	0	0	0	6	6	0	0
NIGHT	0	0	0	0	0	0	0	0
TOTAL	0	0	4	4	7	7	0	0

SCHEDULE IN EFFECT FROM 10/01/99 - 10/18/99

	UPS DEPA B757	UPS ARRI B757	FE DEPA B727100	FE ARRI B727100	FE DEPA A300	FE ARRI A3003	TOTAL DEPA	TOTAL ARRI
DAY	0	5	0	0	0	5	453	423
EVENING	5	0	4	0	5	0	95	117
NIGHT	0	0	0	4	0	0	20	28
TOTAL	5	5	4	4	5	5	568	568

TABLE 5. (CONTINUED)

SCHEDULE IN EFFECT FROM 10/19/99 - 10/30/99

	AA DEPA MD80	AA ARRI MD80	AS DEPA MD80	AS ARRI MD80	HP DEPA B7373	HP ARRI B7373	WN DEPA B7373	WN ARRI B7373
DAY	14	7	27	27	27	27	177	150
EVENING	0	7	0	7	6	7	32	47
NIGHT	0	0	7	0	7	6	0	12
TOTAL	14	14	34	34	40	40	209	209

SCHEDULE IN EFFECT FROM 10/19/99 - 10/30/99

	WN DEPA B7375	WN ARRI B7375	WN DEPA B7377	WN ARRI B7377	UA DEPA B7373	UA ARRI B7373	UA DEPA B7375	UA ARRI B7375
DAY	107	114	8	8	34	27	54	48
EVENING	18	11	6	6	13	20	0	6
NIGHT	0	0	0	0	0	0	6	6
TOTAL	125	125	14	14	47	47	60	60

SCHEDULE IN EFFECT FROM 10/19/99 - 10/30/99

	UA DEPA B757	UA ARRI B757	AL DEPA DC9-ABS	AL ARRI DC9-ABS	AS DEPA B7374	AS ARRI B7374	COMM DEPA BRASIL	COMM ARRI BRASIL
DAY	0	0	0	0	1	1	0	0
EVENING	0	0	0	0	6	6	0	0
NIGHT	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	7	7	0	0

SCHEDULE IN EFFECT FROM 10/19/99 - 10/30/99

	UPS DEPA B757	UPS ARRI B757	FE DEPA B727100	FE ARRI B727100	FE DEPA A300	FE ARRI A3003	TOTAL DEPA	TOTAL ARRI
DAY	0	5	0	0	0	5	449	419
EVENING	5	0	4	0	5	0	95	117
NIGHT	0	0	0	4	0	0	20	28
TOTAL	5	5	4	4	5	5	564	564

TABLE 5. (CONTINUED)

SCHEDULE IN EFFECT FROM 10/31/99 - 10/31/99

	AA DEPA MD80	AA ARRI MD80	AS DEPA MD80	AS ARRI MD80	HP DEPA B7373	HP ARRI B7373	WN DEPA B7373	WN ARRI B7373
DAY	14	7	27	27	27	27	192	172
EVENING	0	7	0	7	6	7	38	46
NIGHT	0	0	7	0	7	6	0	12
TOTAL	14	14	34	34	40	40	230	230

SCHEDULE IN EFFECT FROM 10/31/99 - 10/31/99

	WN DEPA B7375	WN ARRI B7375	WN DEPA B7377	WN ARRI B7377	UA DEPA B7373	UA ARRI B7373	UA DEPA B7375	UA ARRI B7375
DAY	81	80	8	8	34	27	54	48
EVENING	13	14	6	6	13	20	0	6
NIGHT	0	0	0	0	0	0	6	6
TOTAL	94	94	14	14	47	47	60	60

SCHEDULE IN EFFECT FROM 10/31/99 - 10/31/99

	UA DEPA B757	UA ARRI B757	AL DEPA DC9-ABS	AL ARRI DC9-ABS	AS DEPA B7374	AS ARRI B7374	COMM DEPA BRASIL	COMM ARRI BRASIL
DAY	0	0	0	0	1	1	0	0
EVENING	0	0	0	0	6	6	0	0
NIGHT	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	7	7	0	0

SCHEDULE IN EFFECT FROM 10/31/99 - 10/31/99

	UPS DEPA B757	UPS ARRI B757	FE DEPA B727Q	FE ARRI B727Q	FE DEPA A300	FE ARRI A3003	TOTAL DEPA	TOTAL ARRI
DAY	0	5	0	0	0	5	438	407
EVENING	5	0	4	0	5	0	96	119
NIGHT	0	0	0	4	0	0	20	28
TOTAL	5	5	4	4	5	5	554	554

TABLE 5. (CONTINUED)

SCHEDULE IN EFFECT FROM 11/01/99 - 12/14/99

	AA DEPA MD80	AA ARRI MD80	AS DEPA MD80	AS ARRI MD80	HP DEPA B7373	HP ARRI B7373	WN DEPA B7373	WN ARRI B7373
DAY	7	0	27	27	28	28	192	172
EVENING	0	7	0	7	7	7	38	46
NIGHT	0	0	7	0	7	7	0	12
TOTAL	7	7	34	34	42	42	230	230

SCHEDULE IN EFFECT FROM 11/01/99 - 12/14/99

	WN DEPA B7375	WN ARRI B7375	WN DEPA B7377	WN ARRI B7377	UA DEPA B7373	UA ARRI B7373	UA DEPA B7375	UA ARRI B7375
DAY	81	80	8	8	47	47	21	21
EVENING	13	14	6	6	7	20	6	6
NIGHT	0	0	0	0	13	0	0	0
TOTAL	94	94	14	14	67	67	27	27

SCHEDULE IN EFFECT FROM 11/01/99 - 12/14/99

	UA DEPA B757	UA ARRI B757	AL DEPA DC9-ABS	AL ARRI DC9-ABS	AS DEPA B7374	AS ARRI B7374	COMM DEPA BRASIL	COMM ARRI BRASIL
DAY	0	0	0	0	1	1	0	0
EVENING	0	0	0	0	6	6	0	0
NIGHT	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	7	7	0	0

SCHEDULE IN EFFECT FROM 11/01/99 - 12/14/99

	UPS DEPA B757	UPS ARRI B757	FE DEPA B727Q	FE ARRI B727Q	FE DEPA A300	FE ARRI A3003	TOTAL DEPA	TOTAL ARRI
DAY	0	5	0	0	0	5	412	394
EVENING	5	0	4	0	5	0	97	119
NIGHT	0	0	0	4	0	0	27	23
TOTAL	5	5	4	4	5	5	536	536

TABLE 5. (CONTINUED)

SCHEDULE IN EFFECT FROM 12/15/99 - 12/31/99

	AA DEPA MD80	AA ARRI MD80	AS DEPA MD80	AS ARRI MD80	HP DEPA B7373	HP ARRI B7373	WN DEPA B7373	WN ARRI B7373
DAY	7	0	27	27	28	28	192	172
EVENING	0	7	0	7	7	7	38	46
NIGHT	0	0	7	0	7	7	0	12
TOTAL	7	7	34	34	42	42	230	230

SCHEDULE IN EFFECT FROM 12/15/99 - 12/31/99

	WN DEPA B7375	WN ARRI B7375	WN DEPA B7377	WN ARRI B7377	UA DEPA B7373	UA ARRI B7373	UA DEPA B7375	UA ARRI B7375
DAY	81	80	8	8	54	40	28	28
EVENING	13	14	6	6	6	20	0	7
NIGHT	0	0	0	0	0	0	7	0
TOTAL	94	94	14	14	60	60	35	35

SCHEDULE IN EFFECT FROM 12/15/99 - 12/31/99

	UA DEPA B757	UA ARRI B757	AL DEPA DC9-ABS	AL ARRI DC9-ABS	AS DEPA B7374	AS ARRI B7374	COMM DEPA BRASIL	COMM ARRI BRASIL
DAY	0	0	0	0	1	1	0	0
EVENING	0	0	0	0	6	6	0	0
NIGHT	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	7	7	0	0

SCHEDULE IN EFFECT FROM 12/15/99 - 12/31/99

	UPS DEPA B757	UPS ARRI B757	FE DEPA B727Q	FE ARRI B727Q	FE DEPA A300	FE ARRI A3003	TOTAL DEPA	TOTAL ARRI
DAY	0	5	0	0	0	5	426	394
EVENING	5	0	4	0	5	0	90	120
NIGHT	0	0	0	4	0	0	21	23
TOTAL	5	5	4	4	5	5	537	537

TABLE 5. (CONTINUED)

FOURTH QUARTER 1999

PERIOD TOTALS FOR
AIR CARRIERS AND COMMUTERS

AIR CARRIERS

	DEP	ARR
DAY	5622	5298
EVE	1249	1558
NIGHT	309	324
TOTAL	7180	7180

COMMUTERS

	DEP	ARR
DAY	0	0
EVE	0	0
NIGHT	0	0
TOTAL	0	0

AIR CARRIERS AND COMMUTERS

	DEP	ARR
DAY	5652	5298
EVE	1249	1558
NIGHT	309	324
TOTAL	7180	7180

VI. INCOMPATIBLE LAND USE

The contours shown in Figures 1 and 2 were digitized and overlaid on a digital land use map of the area around the Airport. The total areas enclosed by the 65 and 70 dB CNEL contours were 1,229.7 and 503.24 acres, respectively. The areas of incompatible land uses enclosed by the contours were then computed[2]. The incompatible land use areas were 304.75 acres within the 65 dB contour and 20.11 acres within the 70 dB contour.

It should be noted that the above incompatible land areas do not include the soundproofed schools in the vicinity of the Airport (the Luther Burbank Middle School, St. Patrick and Glenwood Schools). The above incompatible land use areas also do not include those residences to which the Airport has acquired avigation easements. Within the 65 dB contour, the Airport has acquired avigation easements, through its ongoing sound insulation program, to 59 parcels of land. Those 59 parcels total 8.87 acres. Twenty five of the 59 parcels, totaling 3.93 acres, are also located within the 70 dB contour. Within the 65 dB contour, the Airport has also acquired avigation easements, under the Court of Appeal decision in Baker vs. Burbank-Glendale-Pasadena Airport Authority, 220 Cal.App.3d 1602 (1990), to an additional 58 parcels of land. Those parcels total 8.52 acres. Seven of those 58 parcels, totaling 1.01 acres, are located within the 70dB contour.

The estimated numbers of residences are 1,371 within the 65 dB contour, and 90 within the 70 dB contour. The estimated numbers of people residing within the 65 and 70 dB CNEL contours are 3,662 and 242 respectively.

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[2] AAAI maintains a digitized map of the existing land use around the Airport. This data base has been employed on a consistent basis in determining the land use and contour areas reported in the quarterly noise reports.

REFERENCES

1. California Department of Transportation, Division of Aeronautics, "Noise Standards", California Code of Regulations, Title 21, Chapter 2.5, Subchapter 6.

2. L-30488, Department of Transportation, State of California, 27 June 1984.

3. "Quarterly Noise Monitoring at Burbank Airport, First Quarter 1999", AAAI Report 1232.

4. "Quarterly Noise Monitoring at Burbank Airport, Second Quarter 1999", AAAI Report 1233.

5. "Quarterly Noise Monitoring at Burbank Airport, Third Quarter 1999", AAAI Report 1234.

APPENDIX A
NOISE MONITOR INSTRUMENTATION

APPENDIX A
NOISE MONITOR INSTRUMENTATION

The permanent noise monitor system, manufactured by Tracor, consists of 17 remote monitoring stations (RMS) connected to a central site by telephone lines. The system block diagram showing the major elements is shown in Figure A-1. The electrical signal generated by the microphone/preamplifier assembly at each site is processed in the RMS electronics. The signal is passed through an A-weighting filter and is then detected and converted to a digital level signal in decibels with a resolution of 0.1 dB.

The digitized sound level is transmitted every half second by telephone line to the central site. The data received by the central site are processed by the computer. According to preset parameters, the noise is separated into two categories--aircraft noise and community noise. Each event attributed to an aircraft is saved in a noise event file. Computations are made of hourly noise level, community noise equivalent level, runway use, and other parameters. A wide variety of data presentations is available by exercising a number of routines provided by Tracor, as well as special-purpose routines that can be generated by the user.

The locations of the remote sites (shown in Figure 3) are listed relative to the runway thresholds in Table A-1.

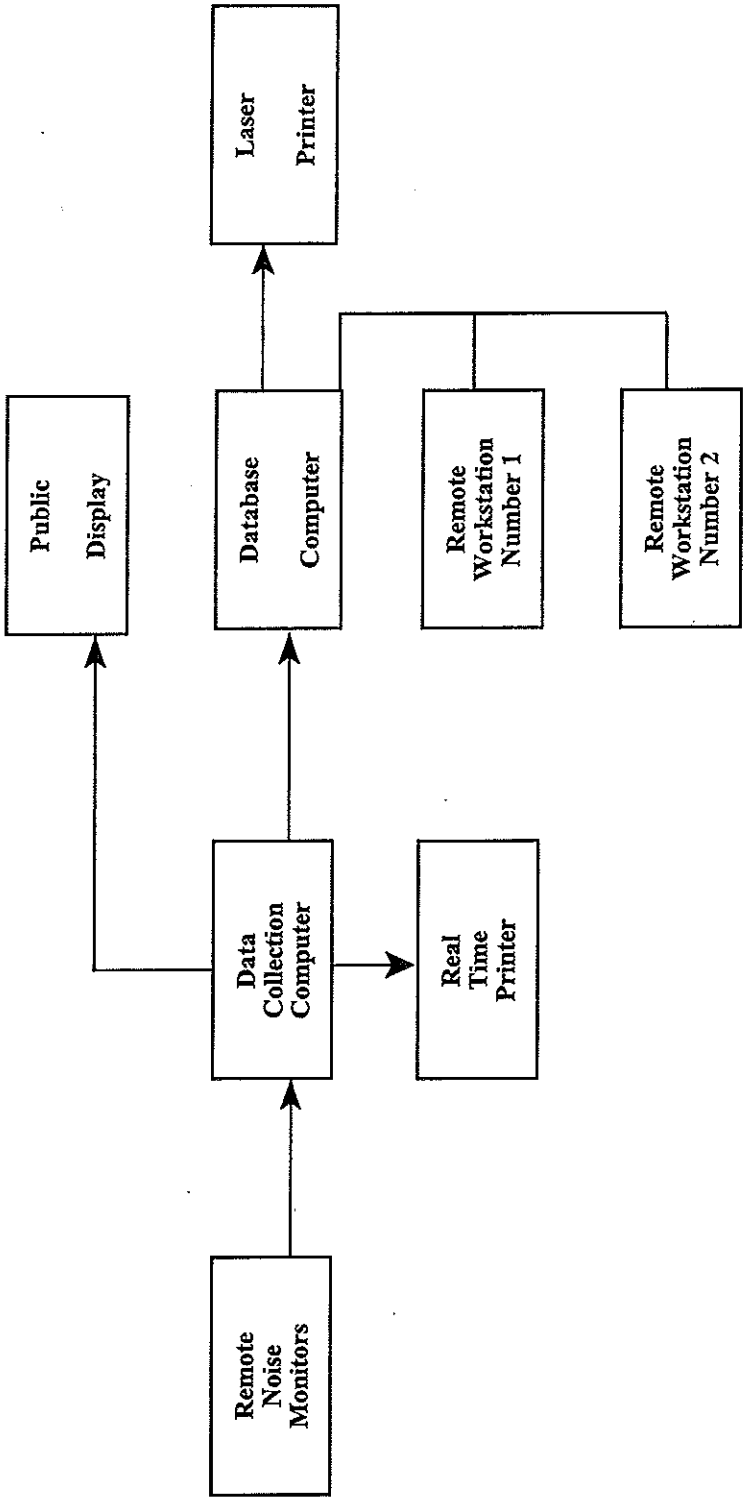

FIGURE A-1. PERMANENT NOISE MONITOR SYSTEM BLOCK DIAGRAM

TABLE A-1
NOISE MONITOR SITE LOCATIONS

Site No.	Distance From N. End of RW 15	Distance From Extended Centerline
1	8590	-1490
2	10830	1590
3	13440	-1090
4	-150	1200
5	-810	1100
6	-3280	-740
7	-4720	-50
12	7520	-3320
13	10660	-3600
14	12780	1160
15	13380	-3920
16	11600	360
17	12900	-3520

Note: Positive distances from the runway threshold are to the south; positive distances from the extended centerline are to the east.

Site No.	Distance From W. End of RW 8	Distance From Extended Centerline
8	-5900	-820
9	-8700	220
10	8180	-880
11	8740	-110
18	-5880	-440

Note: Positive distances from the runway threshold are to the east; positive distances from the extended centerline are to the north.

APPENDIX B
CALIBRATION

APPENDIX B
CALIBRATION

The system was calibrated during setup using a Bruel and Kjaer pistonphone. Acoustic calibrations are being performed approximately every six months. Electrical calibrations are performed automatically shortly after midnight each day. Figure B-1 shows the latest calibration certificate of the pistonphone employed in the acoustic calibrations and Figure B-2 shows a typical electrical calibration.

ACOUSTICAL ANALYSIS ASSOCIATES, INC.
22148 SHERMAN WAY, SUITE 206, CANOGA PARK, CA 91303 • (818) 713-1160

CERTIFICATE OF CALIBRATION

PISTONPHONE TYPE 4220

The calibration is performed by comparison with Pistonphone Type 4220, Serial No. 80256.

Calibrated by: ODIN Date: 15 JUL 1999

If the Ambient Presssure P_a deviates from the above stated nominal value 1013 mbar a correction SPL should be added to the calibrated Sound Pressure Level.

$$SPL = 20 \times \log_{10} \frac{P_a(\text{mbar})}{1013}$$

Calibrated By: R.P. COSTELLO

Date: 8 FEB , 2000

R. Peter Costello
Acoustical Analysis Associates, Inc.
22148 Sherman Way, Suite 206
Canoga Park, CA 91303
(818) 713-1160

Serial No.: 757164

Sound Pressure Level produced in the coupler terminated by a loading volume of 1,333 cm³ at 1013 mbar, 20°C, 65% R.H.
123.84 dB re. 20µPa

Frequency: 250.1 Hz ± 0,5 Hz in "On" position.

Distortion: Less than 3%

Condition of Test:

Ambient Pressure: 991 mbar
Temperature: 21 °C
Relative Humidity: 34 %

INSTRUMENTATION USED FOR CALIBRATION

ITEM	TYPE	SERIAL NO.	CAL DATE	CAL BY	DUE DATE
MEASURING AMP	2606	586767	9 SEP 99	ODIN	9 SEP 00
B.F.OSCILLATOR	1022	466495	18 MAR 99	ODIN	18 MAR 00
SINE GENERATOR	1023	553662	21 SEP 99	ODIN	21 SEP 00
PISTONPHONE	4220	80256	15 JUL 99	ODIN	15 JUL 00
PISTONPHONE	4220	757164	15 JUL 99	ODIN	15 JUL 00
MICROPHONE *	4132	90631	11 JUL. 99	ODIN	11 JUL 00
MICROPHONE *	4144	535815	10 SEP 99	ODIN	10 SEP 00

*B&K ADAPTERS DB0111 AND DD0015 USED TO SIMULATE WESTERN ELECTRIC 640AA MICROPHONE.

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*************************
*  Calibration Report   *
*************************

Calibration  RMS: 1  Passed Peak:109.9 dB @ 03/06/1999  0:06
Calibration  RMS: 2  Passed Peak:109.9 dB @ 03/06/1999  0:06
Calibration  RMS: 3  Passed Peak:109.8 dB @ 03/06/1999  0:06
Calibration  RMS: 4  Passed Peak:109.9 dB @ 03/06/1999  0:06
Calibration  RMS: 5  Passed Peak:110.0 dB @ 03/06/1999  0:06
Calibration  RMS: 6  Passed Peak:109.9 dB @ 03/06/1999  0:06
Calibration  RMS: 7  Passed Peak:110.0 dB @ 03/06/1999  0:06
Calibration  RMS: 9  Passed Peak:109.8 dB @ 03/06/1999  0:06
Calibration  RMS:10 Passed Peak:110.0 dB @ 03/06/1999  0:06
Calibration  RMS:11 Passed Peak:109.1 dB @ 03/06/1999  0:06
Calibration  RMS:12 Passed Peak:110.1 dB @ 03/06/1999  0:06
Calibration  RMS:13 Passed Peak:110.0 dB @ 03/06/1999  0:06
Calibration  RMS:14 Passed Peak:110.0 dB @ 03/06/1999  0:06
Calibration  RMS:15 Passed Peak:109.9 dB @ 03/06/1999  0:06
Calibration  RMS:16 Passed Peak:110.1 dB @ 03/06/1999  0:06
Calibration  RMS:17 Passed Peak:109.8 dB @ 03/06/1999  0:06
Calibration  RMS:18 Passed Peak:109.8 dB @ 03/06/1999  0:06
```

Figure B-2. Typical Daily Electrical Calibration